SONY

XDCAM Camcorder

PDW-530 / PDW-510

XDCAM Studio Recorder

PDW-1500

XDCAM Field Recorder

PDW-R1

XDCAM Field Viewer

PDW-V1

XDCAM Drive Unit

PDW-U1 / PDW-D1

XDCAM™ Professional Disc System

Professional Disc™

Sony Professional Disc™
XDCAM® Series – Changing Workflow Paradigms

In 2003, Sony introduced a new generation of video recording for standard-definition (SD) video production – the XDCAM™ Series optical disc-based recording system.
The XDCAM Series utilizes optical disc media, otherwise known as Professional Disc™ media, with state-of-the-art blue violet technology for recording. The XDCAM's disc-based recording offers users a number of tremendous benefits such as split-second random-access capability, no overwriting on existing footage, and network capability.
The Professional Disc media itself is highly robust, reliable, inexpensive, and reusable – ideal for practical day-to-day operations.
This media is also extremely flexible, and overcomes the limitations of proprietary footprints, thus enabling XDCAM devices to record a wide assortment of data such as MPEG IMX™ and DVCAM™ format video, metadata, and low-resolution versions of footage onto a single disc.
Since its introduction, the XDCAM Series of products for SD programming has been widely adopted by many different users all over the world, from broadcasters and production facilities to professional sports teams and corporations. Sony has been continuously enhancing the functions available on its current products, as well as developing new products to fulfill the customers' diverse operational requirements. The latest XDCAM system offers a variety of powerful functions such as enhanced clip operations, high-resolution clip viewer software, and plug-in software for Apple Final Cut Pro nonlinear editing systems. Furthermore, optional PDBZ-E1500 software has been added to the XDCAM lineup, which provides the PDW-1500 deck with an insert/assemble editing capability. Another new powerful member to the XDCAM lineup is the PDW-U1 drive unit which can be used for desktop PC viewing and source feeding to nonlinear editing systems. With these additions, the Sony XDCAM lineup now consists of two types of 2/3-inch type CCD camcorders, three companion decks, two drive units and two cart systems – all of which meet a diverse range of operation requirements and budgetary constraints.
As a future-proof, disc-based, nonlinear recording system, the Sony XDCAM system is unrivaled – and gives you the ultimate solution for today's and tomorrow's SD video productions.

XDCAM SERIES PRODUCT LINE-UP

■ DECKS

Compact Deck	Field Recorder	Mobile Deck	Drive Unit	Drive Unit
PDW-1500	**PDW-R1**	**PDW-V1**	**PDW-D1**	**PDW-U1**

XDCAM

Professional Disc System

I N D E X

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■ CAMCORDERS

Camcorder (MPEG IMX / DVCAM)
PDW-530/530P

Camcorder (DVCAM)
PDW-510/510P

■ CART

Cart
PDJ-C1080

Cart
PDJ-A640

*Lens, wireless microphone receiver and battery pack are optional.

“Nonlinear” Recording Medium – The Professional Disc

The Sony Professional Disc, PFD23A is a single-sided, optical disc that uses state-of-the-art blue-violet laser technology to enable extremely large-capacity recordings.
The diameter of the disc is a mere 12 cm, equal to that of other optical media such as CDs or DVDs. Yet, despite its small size, the disc provides an amazing storage capacity of 23.3 GB – a feat made possible using a 405 nm blue-violet laser, an objective lens with a 0.85 numerical aperture (NA), and a specially developed recording layer.

Sony has taken great care in selecting the Professional Disc as the next-generation professional recording medium. The choice is based on Sony experience and technical expertise in developing and marketing a wide range of professional products that have effectively served users around the world for several decades.

Flexible Platform

The Professional Disc system is a very flexible platform on which an assortment of data in a variety of formats can reside. The use of optical disc technology eliminates the restrictions inherent in proprietary tape footprints, and allows a variety of different video formats to be recorded as 'data files', and is therefore extremely flexible as to what can be recorded to it. In addition to video and audio streams, you can record a variety of metadata, such as date/time information and comments indicating the material content. Furthermore, computer files created on Microsoft Word, PhotoShop, and other application software can also be stored on a Professional Disc media*.

*Up to 500 MB

Largest-Capacity Optical Disc

The superior disc capacity of the Professional Disc enables you to make high-quality yet long-duration recordings. Its 23.3-GB data capacity translates to a recording time of 45 to 85 minutes depending on the bit rate the camera operator chooses.

High Transfer Rate

The Professional Disc's data transfer rate is 86 Mb/s from a single optical head unit and 172 Mb/s on a dual head deck, providing stable recording and playback of high bit rate data such as a 50 Mb/s MPEG IMX stream.

Quick Random Access

The nonlinear nature of the Professional Disc alone provides tremendous benefit when handling audio/video content. When a recording is played back from the disc, its physical location on the disc does not impact the time required to access it. Recordings can be accessed in a fraction of the equivalent time taken to access information on disc, making it much easier and faster to locate source material. This is the beauty of random access, and all Sony XDCAM products are equipped with powerful features – delivering innovation to all your programming operations.

Highly Reliable, Durable and Re-usable Medium

Optical discs have a natural advantage since they suffer no mechanical contact during recording or playback, making the format ideal for continuous use and re-use. The Sony Professional Disc is highly resistant to dust, shock and scratches, and is packaged in an extremely durable and dust-resistant cartridge.
It is resistant to heat and humidity, and is X-ray resistant – factors that make the Professional Disc ideal for use in harsh field environments, and also allows for long media life and long-term storage.

Professional Disc Media (PFD23A) Specifications

Storage capacity	23.3 GB
Laser wavelength	405 nm (blue-violet)
Data transfer (writing) rate	86 Mb/s (per optical head)
Disc diameter	4 5/8 inches (120 mm)
Cartridge dimensions (W x H x D)	5 1/8 x 5 1/4 x 3/8 inches (129 x 131 x 9 mm)
Weight	3 oz (90 g)
Recording format	Phase change recording

PFD23A

XDCAM Workflow Innovation

Sony XDCAM Series of products offer a variety of unique functions are made possible through the use of optical discs. These functions open up stunning innovations in each area of the production workflow, whether you use the products individually or as part of an integrated XDCAM system.

Instant Random Access and Thumbnail-Based Search of Material

With all XDCAM products, video and audio signals are recorded as one clip file each time a recording is started and stopped. During playback, cue-up to the next or previous clips is possible by simply by pressing the 'Next' or 'Previous' button, as you would do on a CD or DVD player. Furthermore, the thumbnails are automatically generated for each clip as visual reference, allowing operators to cue-up to a desired scene simply by guiding the cursor to a thumbnail and pressing the 'Play' button.

Thumbnail Display on Camcorder LCD Display

No Overwriting to Footage – For Immediate Recording Start

By virtue of recording on optical disc media, the XDCAM system makes each new recording on an empty area of the disc. This is extremely useful, especially when shooting with camcorders, as it relieves the concerns of camera operators about accidentally recording over good takes, and eliminates the burden of searching for the correct position to start the next recording. In short, it means the camera is always ready for the next shot!

IT/Network Friendly System

In the Sony XDCAM Series of products, recordings are made as data files in the industry-standard MXF (Material eXchange Format) file format.

This allows material to be handled with great flexibility in an IT-based environment – easily available for copying, transferring, sharing, and archiving. All these operations are accomplished without any 'digitizing' process required. File-based data copying allows for degradation-free dubbing of AV content, which can be performed easily on a PC. The file-based recording system also allows for material to be viewed directly on a PC, simply by linking it to the XDCAM unit via an i.LINK™ connection. This works in just the same way as a PC reads files on an external drive. The XDCAM products come equipped with IT-friendly, computer-based interfaces. These include an i.LINK interface supporting DV IN/OUT and File Access Mode, Ethernet and USB interfaces*.

Connecting the XDCAM devices to an Ethernet network offers users a new style of network-based operations that can dramatically improve the efficiency of their workflows.

*Supported interfaces vary by product.

XDCAM displayed as a removable storage device (i.LINK (File Access Mode))

Scene Selection

The Scene Selection function allows simple cuts-only editing* to be performed within the camcorder or deck itself. The results of the edits can be saved as an XDCAM EDL (called "Clip List"), which can be written back to the original disc to stay with the material. The disc can then be played back according to the Clip List so that only selected portions are played out in the desired order. The Scene Selection function presents dramatic improvements to conventional workflows, such as when transferring material to a nonlinear editor and/or server, or when searching for material and/or edit points in linear editing systems.

When GUI-based operation is preferred, the Scene Selection operation can be performed on a PC running the PDZ-1 Proxy Browsing software supplied with all XDCAM products, providing a visually familiar working environment.

*The video and audio of a clip cannot be edited independently.

Scene Selection on a Built-in LCD Display

Scene Selection on a PC Running Supplied PDZ-1 Software

Power of Proxy Data – Highly Streamlined Workflows

At the same time as recording its high-resolution video and audio data, XDCAM HD products also record a low-resolution version of this AV data on the same disc. Called "Proxy Data", this is much smaller in size than the high-resolution data (1.5 Mb/s for video and 0.5 Mb/s for audio), and its format is identical to the HD version of the XDCAM products. Because of its lower resolution, Proxy Data can be transferred to a standard PC at an amazingly high speed, and easily browsed and edited using the PDZ-1 Proxy Browsing Software (or other compatible software offered by many industry-leading manufacturers). What's more, with the PDZ-1 software, it can be converted to the popular ASF format for playback on Windows Media Player, providing dramatic improvements in production workflows. Proxy Data can also be viewed directly on a PC without data transfer using an i.LINK (File Access Mode) or USB connection, and can even be sent over a standard Ethernet network.

The overall flexibility of Proxy Data means that it can be used for a variety of applications, such as immediate logging on location, off-line editing, daily rushes of shooting on location, client approval, and more.

High-resolution File Transfer Over a Network

Another stunning feature that innovates current workflows is the capability to transfer high-resolution material over a standard network. Clips recorded on Professional Disc media can be sent and received over a standard network through a LAN port on the decks or camcorders*, allowing seamless exchange of material among any networked devices installed all over the world.

The transfer can be performed by a simple FTP operation using Microsoft Internet Explorer or common FTP client software. The supplied PDZ-1 software can also be used to perform file transfers very easily. For advanced operations, the Partial FTP Transfer function allows only the clips selected in a Clip List to be transferred over the network.

This network capability makes it possible to send footage from the field to the studio immediately after the shoot, or easily share material among production staff at multiple locations, without the lead time of delivering tapes or replying on costly satellite transmissions.

The file-based transfer provides another great benefit: it enables operators to dub material without any generation loss. File operations such as Partial Transfer and Disc Copy can also be performed via the i.LINK (File Access Mode) interface, with the same benefit of no generation loss.

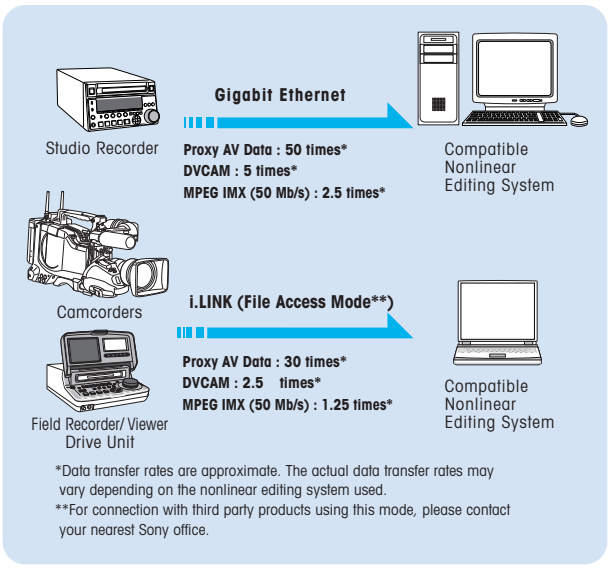
*XDCAM camcorders require an optional Ethernet (100Base-TX) Adaptor (CBK-NC01).

High-Speed Data Transfer – the Foundation of Workflow Innovation

A large part of the appeal of these Sony XDCAM products is their high-speed data transfer capability, allowing you to transfer data to other equipment at speeds several data rates faster than real time. This is possible because XDCAM products provide a range of high-speed interfaces and because, by nature, the Professional Disc offers the flexibility to read data at different speeds.

For low-resolution Proxy AV Data, a maximum transfer speed of an amazing 30 times* for field unit and 50 times* for studio unit faster than real time is achieved, while for high-resolution (MPEG IMX and DVCAM) material, the maximum transfer speed is at 5-times* speed for DVCAM signals and 2.5-times* speed for MPEG IMX signals.

**These are the approximate figures when using the PDW-1500 deck to transfer data over Gigabit Ethernet. The actual transfer rates may vary.*


Gigabit Ethernet
Studio Recorder
Proxy AV Data : 50 times*
DVCAM : 5 times*
MPEG IMX (50 Mb/s) : 2.5 times*
Compatible Nonlinear Editing System
Camcorders
i.LINK (File Access Mode**)
Proxy AV Data : 30 times*
DVCAM : 2.5 times*
MPEG IMX (50 Mb/s) : 1.25 times*
Field Recorder/ Viewer Drive Unit
Compatible Nonlinear Editing System

*Data transfer rates are approximate. The actual data transfer rates may vary depending on the nonlinear editing system used.
**For connection with third party products using this mode, please contact your nearest Sony office.

Features and Benefits of XDCAM Professional Disc Systems

Outstanding Picture Quality of MPEG IMX/DVCAM Format Recording

Sony XDCAM products offer the capability to record* and play back both MPEG IMX and DVCAM streams**. Users have the flexibility to select from these formats according to their picture-quality needs, or to match their editing-format requirements.

The DVCAM format uses 8-bit digital component recording with a 5:1 compression ratio and a sampling rate of 4:1:1 (for NTSC)/4:2:0 (for PAL). The MPEG IMX format uses 8-bit digital component recording with MPEG-2 4:2:2P@ML compression at 50, 40, 30 Mb/s, enabling users to choose the picture quality and recording time according to their needs.

The XDCAM Series of products provide approximately 85 minutes of DVCAM recording time, and 68, 55, and 45 minutes of MPEG IMX recording at 30, 40, and 50 Mb/s, respectively.

MPEG IMX recording is the ideal choice when you need higher picture quality, while DVCAM recording offers the benefit of a longer recording time.

*Recording on the PDW-V1 is available only through the Ethernet or i.LINK (file access mode) interface.

**The PDW-510/510P camcorder is capable of DVCAM recording only.

Recording/Playback Time

MPEG IMX

68 minutes at 30 Mb/s
55 minutes at 40 Mb/s
45 minutes at 50 Mb/s

DVCAM™

85 minutes

Flexible Metadata Recording

XDCAM products are also capable of recording a variety of metadata, which provides a huge advantage when searching for data in subsequent processes. The following are examples of metadata types that Sony XDCAM Series of products can handle and record.

- **Disc Metadata/Clip Metadata**

From acquisition to editing and onto the archiving process, a great amount of information is associated with the recordings. For example, production dates, creator names, camera setup parameters, copyright notes, and memorandums are just a few. With XDCAM products, such information can be saved together with the AV material on the same disc and be effectively used to improve the entire workflow chain. Using the supplied PDZ-1 software allows a variety of data to be added either on a "Disc" or "Individual Clip" basis in different forms such as "Disc Title", "Clip Title", "Disc ID Number", "Comments" or "Clip Status (to indicate OK/NG status)". Furthermore, the PDZ-1 software has a powerful 'Search' function to easily locate desired clips by using the registered metadata as text-based keywords, providing enhanced efficiency in searching material, determining edit points or retrieving archive materials.

- **Essence Mark Recording**

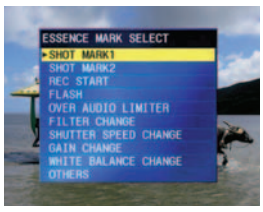
The Essence Mark™ used in Sony XDCAM products is also a very useful form of metadata, and provide a most effective way of searching for recordings via thumbnail pictures. Essence Mark can be set during the shoot either manually or automatically. Thumbnails representing the Essence Mark positions are generated each time the Essence Mark is set, proving invaluable when searching for required scenes in subsequent reviewing and editing processes.

• Manual Marking

Each time the 'return' button on the camcorder lens or the 'Shot Mark' button on the deck is pressed, an Essence Mark is set. After the shoot, operators can quickly cue to that point simply by selecting its thumbnail from a list displayed on the LCD screen of the playback device or a video monitor connected to it. When the PDZ-1 software is used, operators can define Essence Mark names using desired keywords and easily set these as user-defined Essence Marks.

• Automatic Marking

XDCAM camcorders can also automatically set an Essence Mark when particular events are sensed by, or occur within, the camcorder. For example, the camcorder can be set up to record Essence Mark when the audio level overshoots, or when there is an abrupt change in video luminance levels. Since several different types of Essence Marks can exist on the disc, Sony XDCAM Series of products offer an easy way of searching through them by type.



- **Others**

All XDCAM products are also capable of recording UMID/Extended UMID (Unique Material IDentifier) which consists of a globally unique number or a material number. Another unique feature that XDCAM products provide is the capability to record any type of computer file format such as Word, Excel, JPEG, WAV onto the Professional Disc media, which allows operators to record all files associated with the footage onto a single disc.

Seamless Integration into Current VTR-Based Systems

In order to achieve seamless integration into current tape-based systems, a great deal of thought has been put into the development of Sony XDCAM products. A range of conventional AV interfaces including SDI, analog composite, analog/digital audio I/Os and RS-422A 9-pin remote interface allow easy connectivity to current equipment, including a wide variety of VTRs, linear and nonlinear editors, and audio mixers. In addition, XDCAM products offer network-based interoperability with other Sony network-capable equipment, such as the MPEG IMX e-VTR, establishing a highly effective and advanced system. And, because operability is another key concern when investing in new equipment, Sony has paid special attention to this too, allowing operation that is best suited to optical media while retaining the feel of conventional VTR-based products.

Easy and Low-cost Maintenance

From the outset, Sony XDCAM Series of products have been designed using the best concurrent engineering practices, answering maintenance issues before they even arise. Moving parts have been minimized, as have the number of parts requiring periodic replacement. This results in a drastic reduction in maintenance labor, and promotes more efficient use of your equipment.

Sony XDCAM products* are also compatible with Sony remote maintenance and monitoring software – an SNMP-compliant application that can monitor and log the hardware's status in real time via an Ethernet network. If a malfunction is detected, this system can immediately identify the problem, allowing you to take corrective action. Not only is the system reactive, it proactively monitors your systems and identifies maintenance needs in a timely manner too.

** XDCAM camcorders require an optional Ethernet (100Base-TX) Adaptor (CBK-NC01).*

Sony MMStation™ SNMP-compliant Remote Monitoring and Maintenance Software

High Durability and Reliability

In harsh working environments, it is of critical importance that hardware is tolerant to shock and vibration during important shoots. Sony's accumulated knowledge about the tough criteria for such environments, together with years of experience meeting these criteria, contribute greatly to the high reliability of Sony XDCAM products.

The Sony XDCAM camcorders use rubber dampers to hold the disc drive block in place thereby minimizing the effect of any shock or vibration. In addition, a powerful tracking system, based on the best Sony servo technologies, reduces the chance of the optical head recording off track. In the event a shock exceeds the servo's capacity, causing the head to be positioned incorrectly, a buffer memory is available to help prevent off-track recordings. The buffer serves in such a way that recording to the disc will not occur until the optical head returns to its correct position. After the head is properly positioned, the buffered information is recorded to the disc, thereby helping to prevent interruptions in the recording. A substantial amount of buffering has been built into the camcorder to accommodate large off-track errors.

In addition, in the event of an abnormal recording, powerful ECC (Error Correction Code) and sophisticated concealment techniques are available on all machines so that discs can be played back appropriately.

XDCAM Camcorders

PDW-510/510P CAMCORDER (DVCAM RECORDING)
PDW-530/530P CAMCORDER (MPEG IMX/DVCAM RECORDING)

Sony XDCAM camcorders have been designed with special consideration for heavy-duty field acquisition, providing excellent picture quality, operability and reliability inherited from the Sony BETACAM™ family of acquisition products.

In addition to these impressive capabilities, Sony XDCAM camcorders also provide numerous innovative features that take full advantage of the benefits of nonlinear disc media. These unique features offer a completely new style of field operation, adding flexibility and efficiency to those operations where quick program completion is a top priority.

The PDW-530/530P features MPEG IMX/DVCAM-switchable recording and two built-in optical filter wheels (ND and CC), while the PDW-510/510P features DVCAM recording and one built-in optical filter wheel.

** Lens, wireless microphone receiver and battery pack are optional.*

Common Features on Both Camcorders

16:9/4:3 Switchable Power HAD™ EX CCDs

XDCAM camcorders incorporate three 16:9/4:3 switchable CCDs for their image capture device. Using the best of Sony CCD technology, this allows for outstanding picture quality with a high signal-to-noise ratio of 65 dB (NTSC)/63 dB (PAL), low smear level of -140 dB (typical), and high sensitivity of F11.

12-bit A/D Conversion

XDCAM camcorders also incorporate a high-integrity 12-bit A/D converter, so that the high-quality images captured by the Power HAD EX CCDs are processed with great precision. In particular, this high bit resolution allows contrast to be reproduced precisely in mid-tone areas of the picture.

Advanced Digital Signal Processing

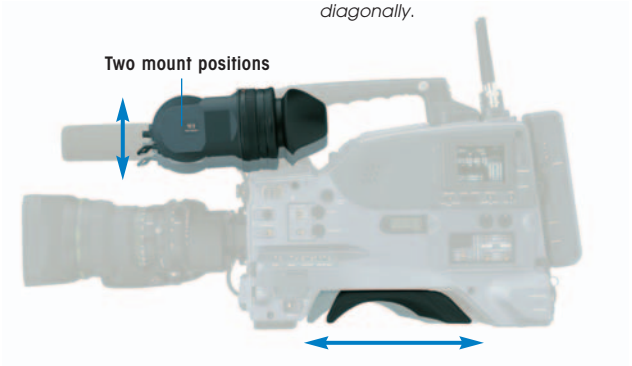
A key to quality in DSP cameras is how many bits are used in their nonlinear processes, such as gamma correction. XDCAM camcorders use more than 30 bits, minimizing round-off errors so the high quality of the CCDs is maintained. The DSP LSI of XDCAM camcorders also enables highly sophisticated image control such as Multi-Matrix function, and Triple Skin-Tone Detail control.

Compact, Lightweight Body

XDCAM camcorders are designed to be very compact and lightweight, for a high level of mobility in the field. They weigh approximately 12 lb 9 oz (5.7 kg) including viewfinder, microphone, disc and BP-GL95 battery pack.

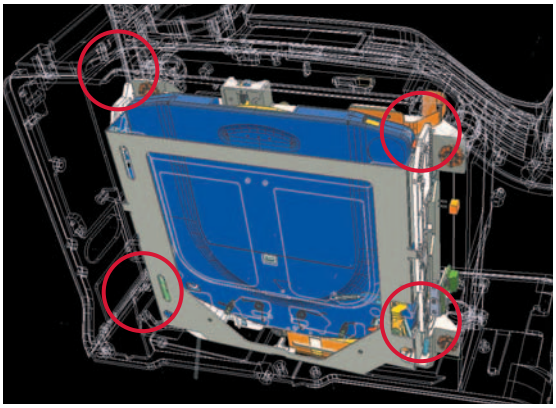
Rugged and Ergonomic Design

The design of these camcorders is based on years of Sony experience in camera ergonomics, and provides a high level of mobility and balance. The shoulder pad position is adjustable and the viewfinder height can be selected from two positions, while rear panel connectors are located well away from the battery pack, making it easy to connect cables. Operators familiar with the comfort benefits of Sony BETACAM camcorders will immediately feel at home with XDCAM camcorders, which extend this comfort even further.



Shock- and Dust-Resistant Disc Drive

To minimize errors caused by shock or dust entering the disc drive, XDCAM camcorders have several unique ways of providing operational resistance to such factors. The disc drive entrance is concealed by two lids helping to prevent any dust from entering the drive. In addition, four rubber dampers are used to hold the disc drive block in place helping to absorb the shock that would otherwise go into the disc drive.



Four Shock-Absorbing Dampers

2.5-inch* Type Color LCD Screen

An easy-to-view color LCD screen provided on the camcorder side panel enables advanced operations such as Thumbnail Search and Scene Selection. Status indications such as four-channel audio meters, and disc and battery remaining time can also be displayed. In addition, camera set-up menus can be displayed.

**Viewable area measured diagonally.*

Extensive Range of Interfaces

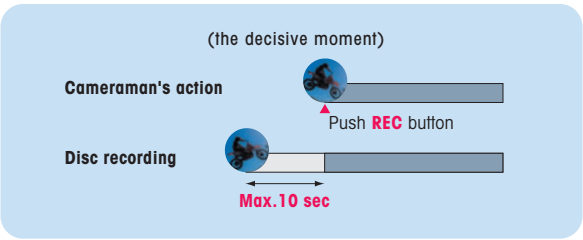
Sony XDCAM camcorders come equipped with a wide range of interfaces. In addition to an analog composite output, they also offer the i.LINK interface that supports both DV IN/OUT and File Access Mode* protocols as standard. By adding the appropriate optional plug-in board, SDI output (CBK-SD01) and analog composite input (CBK-SC01) also become available. The ability to install these boards within the camcorder chassis eliminates the need for an external camera adaptor unit, thus maintaining the compactness and balance of the camcorder.

Furthermore, by adding the optional CBK-NC01 Ethernet (100Base-TX) Adaptor, a network interface also becomes available.

**For connection with third party products using this mode, please contact your nearest Sony office.*

Picture Cache Recording

Picture Cache Recording is a convenient function whereby up to 10 seconds of audio and video signals are buffered into memory before the Rec button is even pressed. This means that everything that happened 10 seconds before the Rec button was pressed, in Standby mode, will still be recorded to disc – a capability that can prevent the loss of unexpected but important events occurring before the operator even has the chance to press the Rec button.



Low-Light Shooting

Sony XDCAM camcorders offer two convenient features for shooting in low-light conditions which can be used either alone or together depending on the situation or operator preferences.
This slow shutter capability also makes it possible to intentionally blur images when shooting a moving object, increasing shooting creativity.

- Slow Shutter allows you to use shutter speeds longer than the frame rate
  - NTSC: 1/2 to 1/30 seconds (1 to 8 and 16 frame accumulation)
  - PAL: 1/2 to 1/25 seconds (1 to 8 and 16 frame accumulation)
- Turbo Gain allows the camera gain to be boosted up to +48 dB

Flexible Image Controls

Sony XDCAM camcorders also provide highly advanced image control features that were once only available on high-end studio cameras. These allow images to be recorded to a disc with maximum quality and camera-work creativity.

- Multi-Matrix function
- Triple Skin-Tone Detail control
- Selectable gamma table
- TruEye™ processing
- Electronic soft focus
- Color-temperature control

Film-like Shooting With Progressive Mode

XDCAM camcorders also provide progressive modes including 24P (optional CBK-FC01* required) to offer a film-like shutter effect. The combined use of this mode and preset film-like gamma settings enables operators to easily create film-like images.

- NTSC: 29.97P or optional 23.976P**
- PAL: 25P

**For NTSC only*
***Recording to disc is in 59.94i via 2-3 pull-down.*
Requires an optional pull-down(24P shooting) board(CBK-FC01).

High-Quality Audio Recordings

Sony XDCAM camcorders record high-quality audio as specified by the recording format selected. These camcorders are also equipped with a range of audio interfaces: an analog 5-pin XLR connector for stereo audio output, two 3-pin XLR connectors with selectable MIC/Line level input, and the front microphone input. The two 3-pin XLR connectors can also be switched to accept four channels of AES/EBU digital audio input, establishing a full digital ENG/EFP system using the Sony DMX-P01 Digital Portable Mixer.

- DVCAM recording: 4 channels, 16 bits, 48 kHz
- MPEG IMX recording: 4 channels, 16 bits, 48 kHz, or 4 channels, 24 bits, 48 kHz

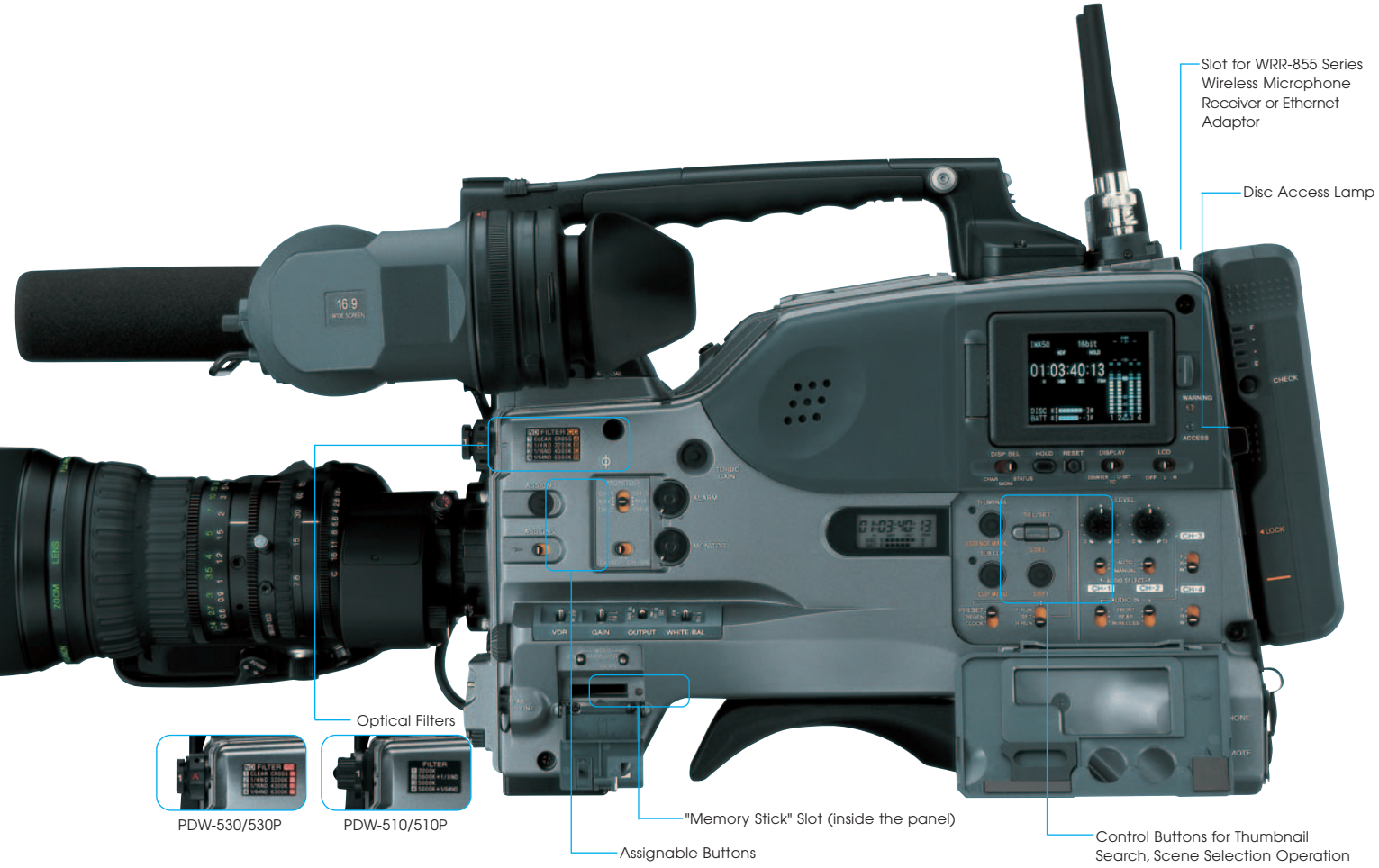
Proxy AV Data Recording on Memory Card

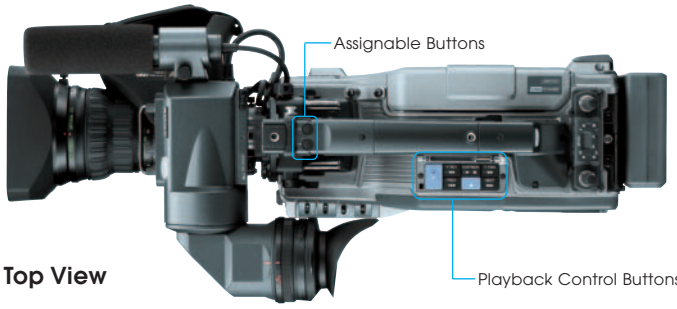
By use of the optional CBK-PC01 Memory Card Adaptor, Proxy AV Data and metadata can be recorded on a Sony Memory Stick™ or SanDisk CompactFlash medium* simultaneously when recorded on a Professional Disc medium. Removing the media from the camcorder and inserting it into a PC allows users to immediately start browsing and editing this data without having to transfer. The small data size of the Proxy AV Data makes it possible to record a large volume of AV data on a single, very small card; for example, up to 65 minutes on a 1-GB card and up to 260 minutes on a 4-GB card.

**A memory card and its compatible memory card adaptor are required.*
**Compatible Sony products are as follows. For other compatible products offered by SanDisk Corporation, please consult with your nearest Sony office.*
- Memory Stick: Sony Memory Stick Pro MSX-1GS, MSX-512S
- Memory Stick Adaptor: Sony Memory Stick PC Card Adaptor MSAC-PC4

Other Features

- Thumbnail Search operation
- Scene Selection operation for in-camera cut editing
- Proxy AV Data recording
- Metadata recording: UMID, Extended UMID, Essence Marks
- A second LCD screen displays time code, and remaining battery/disc capacity during power on and off
- Four assignable buttons, two on the camera handle and two on the inside panel, enable operators to assign frequently used functions
- Auto Tracing White Balance for automatic adjustments in camera color temperature according to lighting changes
- Interval recording (automatic and manual) intermittently records signals at pre-determined intervals, ideal for recording over long periods
- Ability to write EDL (Clip List) back onto disc
- "Memory Stick"™ function for storage of camcorder setup files
- Slot to accommodate a Sony WRR-855 Series wireless microphone receiver
- Optional Ethernet (100Base-TX) Adaptor (CBK-NC01) for Ethernet connection
- Camera remote control via Sony RM-B150 and RM-B750 remote control units
- Intelligent lighting system synchronizes strobe on/off to the Rec button
- i.LINK (DV Stream) output from MPEG IMX playback
- Four types of software supplied: PDZ-1 Proxy Browsing Software, PDZ-VX10 XDCAM Viewer Software, Proxy Viewer Software, PDZK-P1 XDCAM Transfer Software


Slot for WRR-855 Series Wireless Microphone Receiver or Ethernet Adaptor
Disc Access Lamp
Optical Filters
PDW-530/530P
PDW-510/510P
"Memory Stick" Slot (inside the panel)
Assignable Buttons
Control Buttons for Thumbnail Search, Scene Selection Operation



Top View

Rear Connector Panel

XDCAM Decks / Drives / Carts

PDW-1500 COMPACT DECK (RECORDING AND PLAYBACK)
PDW-R1 FIELD RECORDER (RECORDING AND PLAYBACK)
PDW-V1 MOBILE DECK (PLAYBACK AND FILE RECORDING)
PDW-U1 / PDW-D1 DRIVE UNIT (PLAYBACK AND FILE RECORDING)
PDJ-A640/C1080 CART

The Sony XDCAM products offer two types of decks and two drive units to meet the varying operational requirements both in the field and studio. Their functions have been carefully selected to increase production efficiency by exploiting the advantages of Professional Disc media.
The PDW-1500, R1 and V1 decks provide familiar VTR-like controls that minimize the learning curve needed to get up to speed, while the PDW-U1 and PDW-D1 drive units place emphasis on compactness and cost-efficiency. Both decks and the drive units come supplied with four types of software: PDZ-1 Proxy Browsing Software, PDZ-VX10 XDCAM Viewer Software, Proxy Viewer Software, and PDZK-P1 XDCAM Transfer Software (for Apple Final Cut Pro).
(For details, please refer to page 24.)

PDW-1500 Studio Recorder

The PDW-1500 Studio Recorder is a half-rack size recorder suitable for both nonlinear and linear editing environments. Despite its small size, this deck offers high-speed data transfer capability between compatible nonlinear editing devices, creating a powerful editing system for video productions. Equipped with an RS-422A 9-pin interface, the PDW-1500 also fits well in linear editing systems as a feeder, bringing the added benefits of nonlinear disc recoding into a linear editing environment. When the optional PDBZ-E1500 software is added, the PDW-1500 deck can perform insert and assemble editing, and can be used as a recorder in linear editing systems as well.

- MPEG IMX/DVCAM recording
- Proxy AV Data recording
- High-speed file transfers: 50x for Proxy, 5x for DVCAM and 2.5x for MPEG IMX (at 50 Mb/s) files when using a Gigabit Ethernet connection
- High-speed transfer of Proxy AV Data at up to 40 times speed
- Metadata recording
- Ability to write EDL (Clip List) back onto disc
- A variety of interfaces (*refer to the chart on page 19)
- RS-422A 9-pin remote interface
- Thumbnail Search operation
- Scene Selection operation
- Search speed (in color)
  JOG : ±1 times normal speed Variable: ±2 times normal speed
  Shuttle : ±35 times normal speed
- Insert editing of audio tracks of a single clip (Clip audio insert editing function)
- Gigabit Ethernet connectivity
- i.LINK (DV Stream) output from MPEG IMX playback
- The use of the optional RM-280 Editing Controller allows easy control of Thumbnail display and Scene Selection operations, as well as basic playback controls
- Repeat playback function
- Equipped with two optical heads
- Dimensions (W x H x D): 8 3/8 x 5 1/8 x 16 3/8 inches (210 x 130 x 415 mm)
- Weight: 16 lb 5 oz (7.4 kg)

PDBZ-E1500 Linear Editing Software for the PDW-1500 Deck

The optional PDBZ-E1500 software is the latest addition to the XDCAM lineup and it provides Insert/Assemble editing to the PDW-1500 deck. Various editing modes including assemble, audio insert, video insert, time-code insert, A/V split insert, and Punch-in/out are all supported – and can be performed either in an A/B-roll or two-machine configuration.

PDW-R1 Field Recorder

The PDW-R1 is a highly mobile field recorder.
Its compact design is very similar to the existing PDW-V1 model, but the PDW-R1 recorder additionally provides other functionalities such as MPEG IMX/DVCAM recording, and a wider range of interfaces. Its extremely compact, lightweight body makes the PDW-R1 ideal for use in the field as a pool-feed recorder, backup recorder, and compact recorder installed in an extremely confined space such as a car or helicopter. Furthermore, equipped with an RS-422A interface as well as other video and audio interfaces, this recorder can be used in both linear and nonlinear editing systems.

- MPEG IMX/DVCAM recording
- Proxy AV Data recording
- High-speed file transfers: 30x for Proxy, 2.5x for DVCAM, and 1.25 for MPEG IMX (50 Mb/s) files when using an i.LINK (File Access Mode) connection
- Metadata recording
- Ability to write EDL (Clip List) back onto disc
- A variety of interfaces (refer to the chart on page 24)
- RS-422A 9-pin remote interface
- Parallel recording function, which enables the deck's Rec start/stop to be synchronized with the Rec start/stop of the camcorder connected via the i.LINK interface
- 3.5-inch* color LCD screen
- Thumbnail Search operation
- Scene Selection operation
- Search speed (in color):
  JOG : ±1 time normal speed
  Shuttle : ±20 times normal speed
- Compact and lightweight design
- AC, DC, and battery-powered operation
- Ethernet connectivity (100Base-TX)
- i.LINK (DV Stream) output from MPEG IMX playback
- Repeat playback function
- Equipped with one optical head
- Dimensions: 9 1/8 x 4 1/4 x 12 inches (230 x 105 x 340 mm)
- Weight: 10 lb 6 oz (4.7 kg)

**Viewable area measured diagonally.*

PDW-V1 MOBILE DECK

The PDW-V1 Field Viewer is an extremely compact and lightweight unit, offered as an affordable solution for playing back Professional Discs as well as for AV and data file recording* through its Ethernet network interface or i.LINK (File Access Mode**) interface. It is ideal for field applications, and for desktop viewing by journalists, producers, and other production staff. A unique feature of this model is its built-in 3.5-inch*** type color LCD screen, allowing users to view recordings any time, anywhere without the need for an external video monitor. What's more, the PDW-V1 is equipped with an analog RGB output capability, so users can view recordings on standard computer displays too. It also comes equipped with a built-in audio speaker.
The PDW-V1 can be AC or battery powered, a feature that proves convenient in the field. What's more, because it allows high-speed transfer of Proxy AV Data, it can also serve as a cost-effective editing solution. As with other XDCAM products, the PDW-V1 offers a Scene Selection capability, to which even greater user convenience is added with its color LCD screen.

- MPEG IMX/DVCAM playback
- Recording of MPEG IMX/DVCAM files via Ethernet or i.LINK (File Access Mode**) interfaces*
- Proxy AV Data recording
- High-speed file transfers: 30x for Proxy, 2.5x for DVCAM and 1.25x for MPEG IMX (50 Mb/s) files when using an i.LINK (File Access Mode**) connection
- Metadata recording
- Ability to write EDL (Clip List) back onto disc
- Compact, lightweight design
- 3.5-inch*** type color LCD screen
- Built-in audio speaker
- Thumbnail Search operation
- Scene Selection operation
- Analog RGB output capability
- AC/battery-powered operation
- Network connectivity (100Base-TX)
- i.LINK (DV Stream) output from MPEG IMX playback
- Search speed (in color)
  JOG : ±1 times normal speed
  Shuttle : ±20 times normal speed
- Repeat playback function
- Equipped with one optical head
- Dimensions (W x H x D): 8 3/8 x 3 5/8 x 12 5/8 inches (210 x 90 x 320 mm)
- Weight: 7 lb 11oz (3.5 kg)

**The PDW-V1 does not support synchronous video/audio input.*
***For connection with third party products using this mode, please contact your nearest Sony office.*
****Viewable area measured diagonally.*

PDW-U1 Drive Unit

The PDW-U1* is a powerful, new addition to the XDCAM family, which offers a compact, mobile, and highly cost-effective solution for many different applications.
It serves as an external drive connected via a common USB interface, and enables material recorded on Professional Disc media to be viewed directly on a PC. The PDW-U1 can also be used as a source feeder for nonlinear editing systems. One of the most distinguished features of the PDW-U1 is its capability to handle both XDCAM HD and SD discs, providing a high level of versatility and cost-efficiency. Its compact and lightweight design makes it equally ideal for field and in-house desktop uses.

- Handles files in all formats of XDCAM HD and SD formats
- Supports the Hi-Speed USB (USB 2.0) interface- compatible with most PCs
- Direct access to files on Professional Disc media from a USB-connected PC
- High-speed file transfers with the newly developed optical drive
- Material browsing on the supplied PDZ-VX10 XDCAM Viewer software and PDZ-1 Proxy Browsing software
- Highly compact and lightweight
- Dimensions (W x H x D): 2 3/8 x 6 1/2 x 9 inches (59 x 164 x 226 mm)
- Weight: 3 lb 1 oz (1.4 kg)
- Can be operated either horizontally or vertically

*The initial version of the PDW-U1 is read-only, and cannot write files onto Professional Disc media. However, this capability is planned to be available with a software upgrade targeted for release in spring 2008.

PDW-D1 Drive Unit

The PDW-D1 is an XDCAM disc drive unit specifically designed for use in nonlinear editing systems. The drive unit supports the i.LINK interface supporting DV IN/OUT and File Access Mode* protocols, allowing connection with a variety of nonlinear editing systems. Its highly compact and lightweight design allows installation in any working environment even on a busy journalist's desktop as well as awkward working areas in the field.
The PDW-D1 provides a smart, yet cost-effective option for editing tasks.

- i.LINK interface supports both DV IN/OUT and File Access Mode protocols
- High-resolution AV file (MPEG IMX/DVCAM) recording via i.LINK (File Access Mode) interface
- DVCAM playback and recording via i.LINK (DV IN/OUT) interface
- Proxy AV Data recording
- i.LINK (DV stream) output from MPEG IMX recordings
- Metadata recording
- Ability to write EDL (Clip List) back onto disc
- High-speed file transfers : 30x for Proxy, 2.5x for DVCAM and 1.25x for MPEG IMX (50 Mb/s) files when using an i.LINK (File Access Mode**) connection
- Equipped with one optical head
- AC/battery-powered operation (battery-connection requires the optional BKP-L551 adaptor.)
- Highly compact and lightweight
- Dimensions (W x H x D): 7 1/4 x 10 1/8 x 3 1/8 inches (182 x 257 x 78 mm)
- Weight: 6 lb 9 oz (3.0 kg)

**For connection with third party products using this mode, please contact your nearest Sony office.*

		PDW-U1	PDW-D1
Power requirements		DC 12 V	AC 100 to 240 V, 50/60 Hz, Battery
Power consumption		10 W	22 W
Operating temperature		+41 to +104 °F (5 to 40 °C)	+32 to +104 °F (0 to 40 °C)
Storage temperature		-4 to +140 °F (-20 to +60 °C)	-4 to +140 °F (-20 to +60 °C)
Humidity		20 to 90% (relative humidity)	20 to 90% (relative humidity)
Weight		3 lb 1 oz (1.4 kg)	6 lb 9 oz (3.0 kg)
Dimensions		2 3/8 x 6 1/2 x 9 inches (59 x 164 x 226 mm)	3 1/8 x 7 1/4 x 10 1/8 inches (78 x 182 x 257 mm)
Recording/ playback format	Video	MPEG HD (50/35/25/18 Mb/s) MPEG IMX (50/40/30 Mb/s) DVCAM (25 Mb/s)	MPEG IMX (50/40/30 Mb/s) DVCAM (25 Mb/s)
	Proxy Video	MPEG-4	MPEG-4
	Audio	MPEG HD: 4/2 ch/16 bits/48 kHz MPEG IMX: 8 ch/16 bit/48 kHz, or 4 ch/24 bit/48 kHz DVCAM: 4 ch/16 bit/48 kHz	MPEG IMX: 8 ch/16 bit/48 kHz, or 4 ch/24 bit/48 kHz DVCAM: 4 ch/16 bit/48 kHz
	Proxy Audio	A-law (8/4/2 ch/8 bit/8 kHz)	A-law (8/4 ch/8 bit/8 kHz)
Interfaces		Hi-Speed USB (USB 2.0)	i.LINK, IEEE1394, DV IN/OUT or File Access Mode
Supplied accessories		Operation manual (x1), PDZ-1 Proxy Browsing Software (x1), PDZ-VX10 XDCAM Viewer Software (x1), Proxy Viewer Software (x1), PDZK-P1 XDCAM Transfer, Software (x1), Setup utility software (x1)	Operation manual (x1), PDZ-1 Proxy Browsing Software (x1), PDZ-VX10 XDCAM Viewer Software (x1), Proxy Viewer Software (x1), PDZK-P1 XDCAM Transfer Software (x1), Setup utility software (x1)

PDJ-A640 Cart
PDJ-C1080 Cart

PDJ-A640 PDJ-C1080

The PDJ-C1080 and PDJ-A640 are automated robotic cart systems ideal for multi-disc ingesting, archiving, and on-air playout applications. The smaller PDJ-C1080 accommodates up to four PDW-1500 units and up to 80 discs, while the larger PDJ-A640 accommodates up to four PDW-1500 units and up to 640 discs. The PDJ-A640 also accommodates PDW-F75 XDCAM HD decks in any combination with PDW-1500 units.

These cart systems are equipped with a standard VCC control protocol, allowing easy integration into existing systems. The total storage capacities are 1.8 Terabytes when using 80 discs and 15 Terabytes using 640 discs. PDJ-CS10 Cart Interface Software is available to interface with MXF-compliant systems such as editors and servers.

With the XDCAM system file-based operations and metadata capability, as well as the reliability, long life, and small physical size of the Professional Disc media, these cart systems provide significant operational benefits, greater reliability, reduced operational costs, and space-saving benefits compared to tape-based systems.

	PDJ-A640	PDJ-C1080
Max. number of decks installed and compatible model	4 PDW-1500 and PDW-F75, in any combination	4 PDW-1500
Max. number of disc	640	80
Total storage capacity and approximate recording time	15 Terabytes 480 hours (MPEG IMX 50 Mb/s) 906 hours (DVCAM)	1.8 Terabytes 60 hours (MPEG IMX 50 Mb/s) 113 hours (DVCAM)

- Ideal for multi-disc ingesting, archiving, and on-air playout applications
- Equipped with VCC protocol (RS-422 or RS-232C)
- Equipped with a barcode reader unit
- Optional PDJ-CS10 Application Software to interface with MXF-compliant systems such as editors and servers
- High reliability and low-cost maintenance

Inputs/Outputs

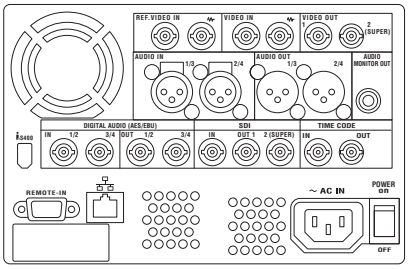
		PDW-1500	PDW-R1	PDW-V1	PDW-D1	PDW-U1
Outputs	SDI	●	●	●	—	—
	Analog composite	●	●	●	—	—
	Digital audio	●	●	—	—	—
	Analog audio	●	●**	—	—	—
	Audio monitor	●	●**	●	—	—
	Headphone	●	●	●	—	—
	Analog RGB	—	—	●	—	—
	Time code	●	●	—	—	—
Inputs	SDI	●	●	—	—	—
	Analog composite	●	●	—	—	—
	Digital audio	●	●	—	—	—
	Analog audio	●	●	—	—	—
	Time code	●	●	—	—	—
Others	Remote(RS-422A)	●	●	—	—	—
	Ethernet	1000Base-T	100Base-TX	100Base-TX	—	—
	i.LINK (DV IN/OUT)	●	●	●***	●	—
	i.LINK (File Access Mode*)	●	●	●	●	—
	Hi-Speed USB (USB 2.0)	—	—	—	—	●

**For connection with third party products using this mode, please contact your nearest Sony office.*
***Analog audio output and audio monitor output share the same connector. ***DV OUT only*

Front Panels and Input/Output Connectors

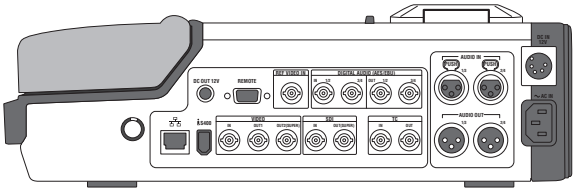
PDW-1500

Studio Recorder



PDW-R1

Field Recorder

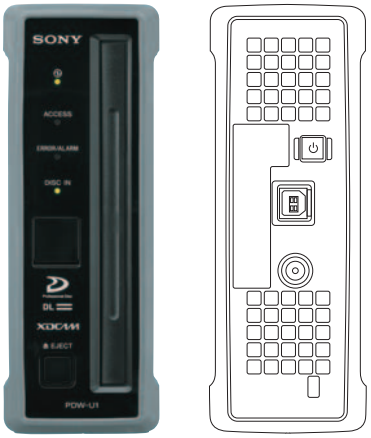


PDW-D1

Drive Unit

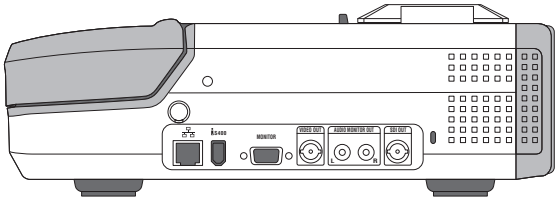
PDW-U1

Drive Unit



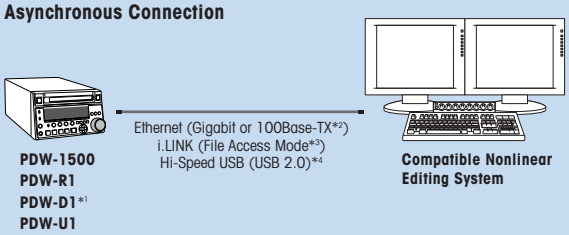
PDW-V1

Mobile Deck

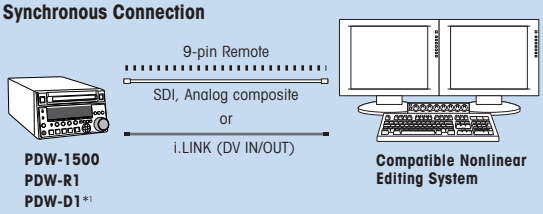


NONLINEAR EDITING

Asynchronous Connection

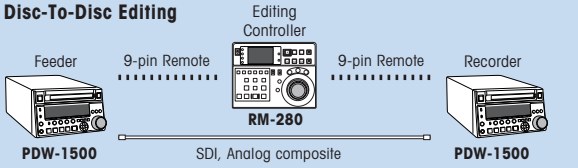


Synchronous Connection

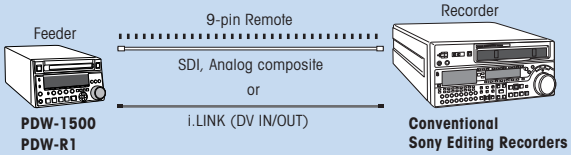


LINEAR EDITING

Disc-To-Disc Editing

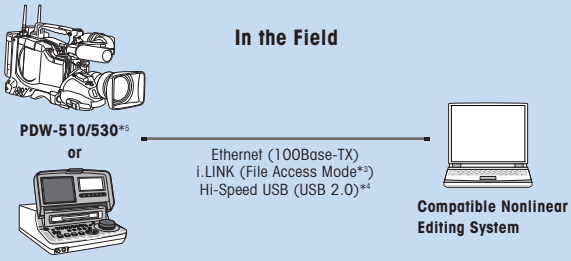


Disc-To-Tape Editing

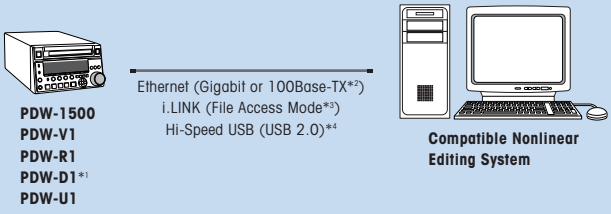


PROXY (LOW-RESOLUTION) EDITING

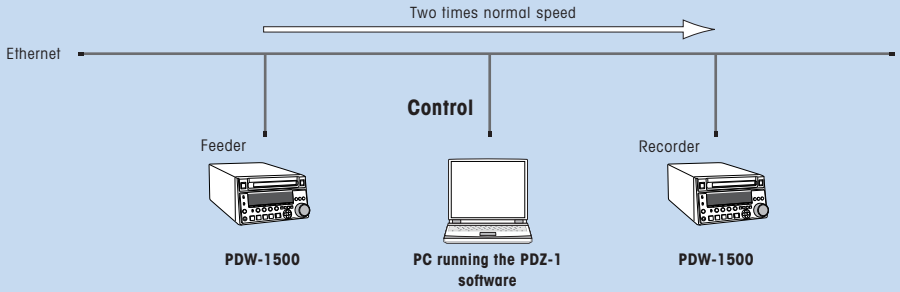
In the Field



In-house



HIGH-SPEED DUBBING



*1 *The PDW-D1 supports i.LINK (DV IN/OUT and File Access Mode) only.*

*2 *Ethernet interface depends on the XDCAM deck used.*

*3 *For connection with third party products using this mode, please contact your nearest Sony office.*

*4 *PDW-U1 only, and the initial version of the PDW-U1 is read-only, and cannot write files onto Professional Disc media. However, this capability will be available with a software upgrade targeted for release in spring 2008.*

*5 *Ethernet interface on the PDW-510/530 is optional.*

XDCAM Application Software

All XDCAM products come with a variety of free application software packages that maximize the benefits of the XDCAM's disc- and file-based operations.

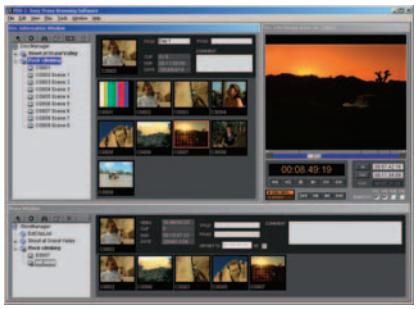
PDZ-1 PROXY BROWSING SOFTWARE
PDZ-VX10 VIEWER SOFTWARE
PROXY VIEWER SOFTWARE
PDZK-P1 TRANSFER SOFTWARE

PDZ-1

The PDZ-1 software is a simple-to-use PC application that allows users to easily browse and storyboard video clips recorded by an XDCAM system. It runs on Windows-based PCs and supports three types of interfaces: i.LINK (File Access Mode), Ethernet, and USB (only for connection with the PDW-U1).

Once Proxy Data recorded on a Professional Disc media is transferred to a PC with the PDZ-1 software installed, users can conveniently view and storyboard recorded footage right on the PC. The PDZ-1 software also provides a variety of convenient tools for disc operations such as entire or partial disc copy (dubbing), and transfer between two XDCAM devices.

Storyboarding on a PC not only allows users to preview their edited sequences instantly, it also provides other powerful benefits such as the creation of ASF files (playable on Windows Media Player) and EDL data in various EDL formats, plus the transfer of high-resolution clips selected in the edited sequence.



PDZ-1 Main GUI

Print Function

- Supported interfaces: i.LINK (File Access Mode), Ethernet, and USB (only for connection with the PDW-U1)
- High-speed ingestion of Proxy Data from the XDCAM devices
- Browsing of Proxy Data recorded by the XDCAM systems (including those recorded by the HD version of the XDCAM system)
- Imports Proxy Data and metadata from a memory card
- Simple and quick cuts-only editing (storyboarding)* with the following fuctions;
  - Preview a result of the storyboard on the PC
  - Save the results as a Clip List (XDCAM EDL)
  - Convert the Proxy Data on the storyboard to an ASF file for replay on Windows Media Player
  - Export the Clip List in AAF, BE-9100, Newsbase™ XML, and ALE (Avid Log Exchange) formats
  - Transfer high-resolution clips according to the Clip List
- Disc copy – entire disc (all clips) or only selected clips
- Transfer selected clips with margins at the head and tail of the clips
- Registration of metadata such as "title", "creator", or "comments" for a disc or clip
- Registration of "Essence Marks" metadata for instant cue-up to desired scenes. Names for Essence Marks can also be easily assigned
- Supports a live logging function that allows operators to browse and storyboard Proxy Data, and add Essence Mark metadata and other metadata on a PC while the camcorder or PDW-1500 deck is still recording**
- Automatic renaming of clips by predetermined rule (use-predetermined prefix plus sequential numbers)
- Clip search function using the registered metadata as a keyword
- Print function allows metadata such as thumbnails, creation date, and comments to be printed out in an easy-to-see storyboard view

The video and audio of a clip cannot be edited independently.

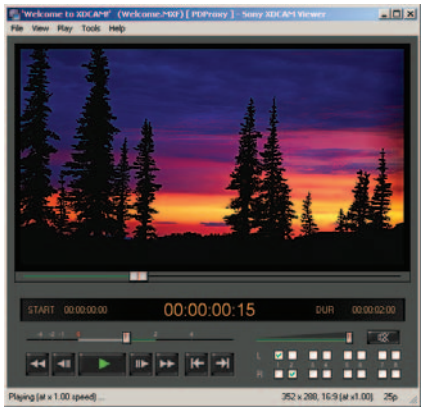
***Possible when connecting the XDCAM products and the PC via an Ethernet interface.*

System requirements

OS: Windows XP (SP2 or later) (for PDW-530/510/1500/R1/V1/U1/D1)
Windows Vista Business 32bit/Ultimate 32bit (for PDW-U1)
CPU: Pentium M Processor or higher
NOTE:When using Live Logging Mode, recommended CPU is Pentium4 2GHz or higher
RAM: 512 MB or more
Others: Internet Explorer 6.0 (SP1 or later), DirectX 8.1b or later

PDZ-VX10 Sony XDCAM Viewer

The PDZ-VX10 software allows users to view high-resolution and Proxy MXF files recorded by XDCAM systems on their PC. With this software installed, thumbnails for all clips can be displayed in Windows Explorer, enabling the contents of the disc to be scanned through easily and quickly.



System requirements

OS: Windows XP (SP2 or later) (for PDW-530/510/1500/R1/V1/U1/D1)
Windows Vista Business 32bit/Ultimate 32bit (for PDW-U1)
CPU: Intel Core Duo processor 1.83GHz or higher Or Intel Pentium4 3GHz or higher
RAM: 1 GB or more

The video playback performance will vary depending on the video format, file size, and the performance of the computer used. For more details on system requirements, please contact your nearest Sony office.

Proxy Viewer

The Proxy Viewer is a simple application to play back Proxy Data on a PC.

System requirements

OS: Windows XP (SP2 or later) (for PDW-530/510/1500/R1/V1/U1/D1)
Windows Vista Business 32bit/Ultimate 32bit (for PDW-U1)
CPU: Pentium M Processor or higher
RAM: 512 MB or more
Others: Internet Explorer 6.0 (SP1 or later), DirectX 8.1b or later

PDZK-P1 XDCAM Transfer for Apple Final Cut Pro nonlinear editing systems

The PDZK-P1 XDCAM Transfer is plug-in software for Apple Final Cut Pro nonlinear editing systems that provides native support for MXF files recorded by XDCAM systems. With this software installed, XDCAM devices can be mounted on Mac Finder via a FireWire/i.LINK connection, and users can seamlessly import, edit, and export recorded material.

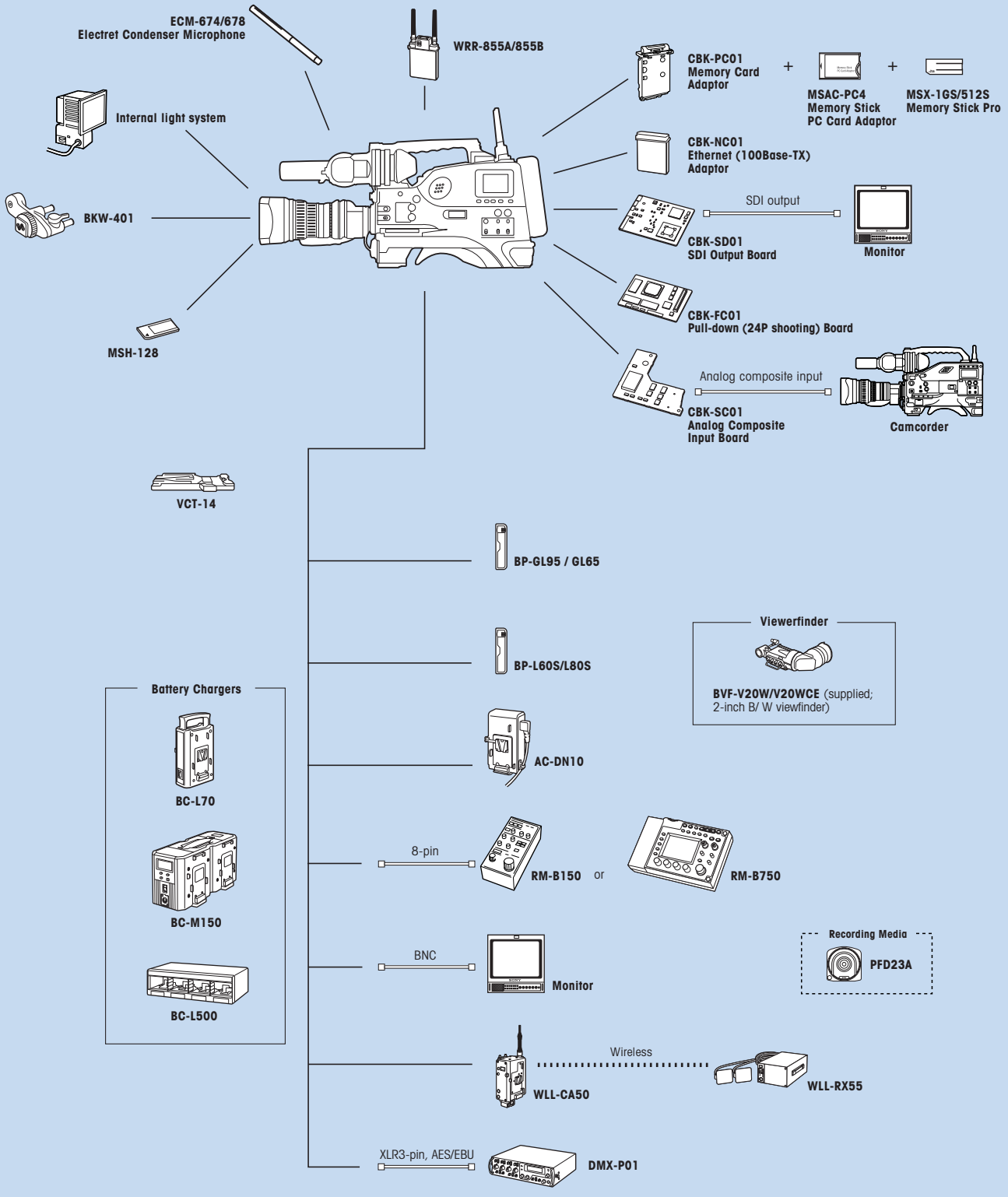
System requirements

OS: Mac OS X version 10.4.10 or later
CPU: PowerPC G5 2GHz, Intel Core2Duo 2GHz, Intel Xeon 2GHz or higher
Others: QuickTime version 7.2 or later
Final Cut Pro version 6.0.1 or later

The latest versions of software can be downloaded from the Sony Website.

Camcorder System Diagrams

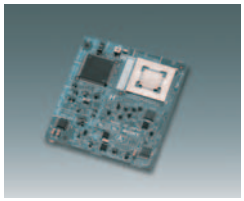
Unless specified as "supplied", all the components below are optional.



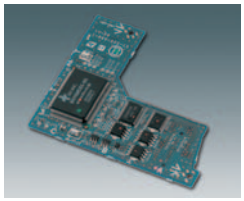
Optional Accessories

For PDW-510/510P/530/530P Camcorders

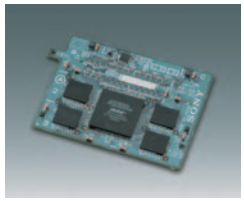
PFD23A
Professional Disc



CBK-SD01
SDI Output Board



CBK-SC01
Analog Composite Input Board



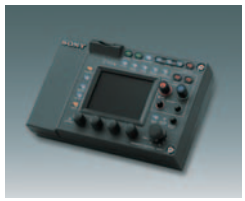
CBK-FC01
Pull-down (24P shooting) Board (For PDW-530/510 NTSC models)

CBK-NC01
Ethernet (100Base-TX) Adaptor

CBK-PC01
Memory Card Adaptor

BKW-401
Viewfinder Rotation Bracket

RM-B150
Remote Control Unit



RM-B750
Remote Control Unit

AC-DN10
AC Adaptor

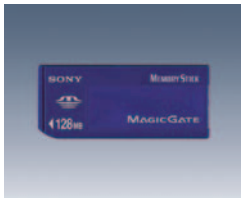
BP-GL95/GL65
Lithium-ion Battery Pack

BC-L70
Battery Charger

BC-M150
Battery Charger

BC-L500
Battery Charger

VCT-14
Tripod Adaptor



MSH-128
Memory Stick

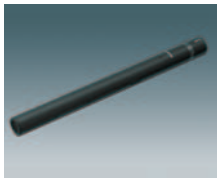
CCFD-3L
i.LINK Cable
(4-pin to 6-pin with lock)

CCF-3L
i.LINK Cable
(6-pin to 6-pin with lock)

WRR-855A/855B
Wireless Microphone Receiver (Slot-in type)

WRR-862A/862B
Wireless Microphone Receiver

DMX-P01
Portable Audio Mixer



ECM-674/678
Shotgun-type Electret Condenser Microphone

LC-424TH
Carrying Case

**A memory card and its compatible memory card adaptor are required.*
**Compatible Sony products are as follows. For other compatible products offered by SanDisk Corporation, please consult with your nearest Sony office.*
- Memory Stick: Sony Memory Stick Pro MSX-1GS, MSX-512S
- Memory Stick Adaptor: Sony Memory Stick PC Card Adaptor MSAC-PC4

For PDW-R1/V1/D1/1500 Decks

PFD23A
Professional Disc

VMC-IL4615B/IL4635B
i.LINK Cable (4-pin to 6-pin, 1.5 m/3.5 m)

VMC-IL6615B/IL6635B
i.LINK Cable (6-pin to 6-pin, 1.5 m/3.5 m)

RM-280
Editing Controller (PDW-1500/R1)

RCC-5G
Remote Control Cable (5 m) (PDW-1500/R1)

BP-GL95/GL65
Lithium-ion Battery Pack (PDW-R1/V1/D1)

BP-L60S/L80S
Lithium-ion Battery Pack (PDW-R1/V1/D1)

BC-L70
Battery Charger (PDW-R1/V1/D1)

BC-M150
Battery Charger (PDW-R1/V1/D1)

BC-L500
Battery Charger (PDW-R1/V1/D1)

BKP-L551
Battery Adaptor (PDW-D1)

Specifications

XDCAM Camcorders

			PDW-510/510P (DVCAM)	PDW-530/530P (DVCAM / MPEG IMX)
General	Weight		Approx. 9 lb (4.1 kg) 12 lb 12 oz (with VF, Mic, Disc, BP-GL95 battery) (5.8kg)	
	Power requirements		DC 12 V +5.0 V/-1.0 V	
	Power consumption		Approx. 32 W (while recording, with viewfinder, color LCD off)	
	Operating temperature		+23 to +104 °F (-5 to 40 °C)	
	Storage temperature		-4 to+140 °F (-20 to +60 °C)	
	Humidity		10 to 90% (relative humidity)	
	Continuous operating time		Approx. 120 min. w/BP-GL95 battery	
	Recording format	Video	DVCAM (25 Mb/s)	MPEG IMX (50/40/30 Mb/s), DVCAM (25 Mb/s)
		Proxy Video	MPEG-4	
		Audio	DVCAM: 4 ch/16 bits/48 kHz	MPEG IMX: 4 ch/16 bits/48 kHz DVCAM: 4 ch/16 bits/48 kHz
		Proxy Audio	A-law (4ch, 8 bits, 8 kHz)	
	Recording/Playback time	MPEG IMX	—	50 Mb/s: 45 min., 40 Mb/s: 55 min., 30 Mb/s: 68 min.
		DVCAM	85 min.	
Signal inputs	Genlock video		BNC x1, 1.0 Vp-p, 75 Ω	
	Time code input		BNC x1, 0.5 to 18 Vp-p, 10 kΩ	
	Audio input		XLR-3-31 x2, line / mic / mic+48V / AES/EBU selectable	
	Mic input		XLR-3-31 x1	
Signal outputs	Video output		BNC x1, 1.0 Vp-p, 75 Ω	
	Video test output		BNC x1, 1.0 Vp-p, 75 Ω	
	Time code output		BNC x1, 1.0 Vp-p, 75 Ω	
	Earphone		Mini-jack x2 (front: monaural, rear: stereo/monaural)	
	Audio output (CH-1/CH-2)		XLR-5-pin male (stereo)	
Other inputs/outputs	Lens		12-pin	
	Remote		8-pin	
	Light		2-pin, DC 12 V, max. 50 W	
	DC input		XLR-4-pin	
	DC output		4-pin (for wireless microphone receiver), DC 12 V (MAX 0.2A)	
	Camcorder adapter		40-pin	
	i.LINK		IEEE 1394, DV IN/OUT or File Access Mode*, 6-pin x1	
Audio performance	Frequency response		20 Hz to 20 kHz, +0.5 dB/-1.0 dB	
	Dynamic range		More than 85 dB	
	Distortion		Less than 0.08% (at 1 kHz, reference level)	
	Crosstalk		Less than -70 dB (at 1 kHz, reference level)	
	Wow & flutter		Below measurable limit	
	Head room		20 dB (ex-factory setting)	
Camera section	Pickup device		3-chip 2/3-inch type 16:9 widescreen Power HAD EX CCD	
	Total picture elements		NTSC model: 1038(H) x 1008(V) PAL model: 1038(H) x 1188(V)	
	Effective picture elements		NTSC model: 980(H) x 494(V) PAL model: 980(H) x 582(V)	
	Optical system		F1.4 prism	
	Built-in optical filters		1 : 3200K, 2 : 5600K+1/8ND, 3 : 5600K, 4 : 5600K + 1/64ND	1 : Clear, 2: 1/4ND, 3: 1/16ND, 4: 1/64ND A : CROSS, B: 3200K, C: 4300K, D: 6300K
	Shutter speed		NTSC model: 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 (s) PAL model: 1/60, 1/125, 1/250, 1/500, 1/1000, 1/2000 (s)	
	Slow Shutter		NTSC model: 1/2 to 1/30 (s) PAL model: 1/2 to 1/25 (s) (1 to 8 and 16 frame accumulation)	
	Lens mount		2/3" 48 bayonet mount	
	Sensitivity (2000 lx, 89.9% reflectance)		F11 (typical)	
	Minimum illumination		Approx. 0.13 lx (F1.4 lens, +48 dB turbo gain, shutter off), approx. 0.008 lx (with 16-frame accumulation)	
	Gain selection		-3, 0, 3, 6, 9, 12, 18, 24, 30, 36, 42, 48 dB	
	Smear level		-140 dB (typical)	
	S/N ratio		NTSC model: 65 dB (typical) PAL model: 63 dB (typical)	
	Vertical resolution		NTSC model: 400 TV Lines/450 TV Lines (EVS) PAL model: 480 TV Lines/530 TV Lines (EVS)	
	Registration		0.05% (all zones, w/o lens)	
	Geometric distortion		Below measurable level (w/o lens)	
	Modulation depth at 5 MHz		70% (16:9, typical)/55% (4:3, typical)	
Viewfinder	CRT		2.0-inch type monochrome	
	Controls		BRIGHT, CONTRAST, PEAKING controls, TALLY, ZEBRA, DISPLAY switches	
	Horizontal resolution		450 TV lines (16:9)	
	Microphone		Ultra-directional (detachable)	
Built-in LCD monitor			2.5-inch type color LCD monitor	
Supplied accessories			Operation manual (x1) PDZ-1 Proxy Browsing Software (x1), PDZ-VX10 XDCAM Viewer Software (x1) Proxy Viewer Software (x1), PDZK-P1 XDCAM Transfer Software (x1) Viewfinder (x1) Lens cap (x1) Shoulder belt (x1) Monaural microphone (x1)	

**For connection with third party products using this mode, please contact your nearest Sony office.*

XDCAM Decks

			PDW-1500 Studio Recorder	PDW-R1 Field Recorder	PDW-V1 Field Viewer
General	Power requirements		AC 100 to 240 V, 50/60 Hz	AC 100 to 240 V, 50/60 Hz, DC +12 V, Battery	AC 100 to 240 V, 50/60 Hz, Battery
	Power consumption		75 W	37 W	45 W
	Operating temperature		+42 to +104°F (+5 to 40°C)	+32 to +104°F (0 to 40°C)	
	Storage temperature		-4 to +140°F (-20 to +60°C)		
	Humidity		20 to 90% (relative humidity)		
	Weight		16 lb 5 oz (7.4 kg)	10 lb 6 oz (4.7kg)	7 lb 11 oz (3.5 kg)
	Dimensions (W x H x D)		8 3/8 x 5 1/8 x 16 3/8 inches (210 x 130 x 415 mm)	9 1/8 x 4 1/4 x 12 inches (230 x 105 x 340 mm)	8 3/8 x 3 5/8 x 12 5/8 inches (210 x 90 x 320 mm)
	Recording/playback format	Video	MPEG IMX (50/40/30 Mb/s), DVCAM (25 Mb/s)		
		Proxy Video	MPEG-4		
		Audio	MPEG IMX: 8 ch/16 bit/48 kHz or 4 ch/24 bit/48 kHz DVCAM: 4 ch/16 bit/48 kHz		
		Proxy Audio	A-law (8/4 ch, 8 bit, 8 kHz)		
	Recording/playback time	MPEG IMX	50 Mb/s: 45 min., 40 Mb/s: 55 min., 30 Mb/s: 68 min.		
		DVCAM	85 min.		
	Search speed (in color)	Jog mode	±1 times normal playback speed	±1 times normal playback speed	
		Variable mode	±2 times normal playback speed	—	
		Shuttle mode	±35 times normal playback speed	±20 times normal playback speed	
Signal inputs	Analog reference input		BNC x2 (including loop through), 0.286 Vp-p, 75 Ω, sync negative	BNC x1, 0.286 Vp-p, 75 Ω, sync negative	—
	Analog composite input		BNC x2 (including loop through), 1.0 Vp-p, 75 Ω, sync negative	BNC x1, 1.0 Vp-p, 75 Ω, sync negative	—
	SDI input		BNC x1, SMPTE 259M, (ITU-R BT656-3), 270 Mb/s		—
	Analog audio input		XLR x2 (channel selectable), +4/0/-3/-6 dBu (selectable from menu), 10 kΩ, balanced		—
	Digital audio input		AES/EBU, BNC x2, 4 channels		—
	Time code input		BNC x1		—
Signal outputs	Analog composite video output		BNC x2 (including one character out), 1.0 Vp-p, 75 Ω, sync negative		BNC x1 (character out), 1.0 Vp-p, 75 Ω, sync negative
	SDI output		BNC x2 (including one character out), SMPTE 259M (ITU-R BT656-3), 270 Mb/s	BNC x1 (character out), SMPTE 259M (ITU-R BT656-3), 270 Mb/s	
	Video monitor output		—		D-sub 15-pin x1, analog RGB
	Built-in display		—	3.5-inch type color LCD monitor	
	Analog audio output		XLR x2 (ch. selectable), +4/0/-3/-6 dBu (selectable from menu), 600 Ω load, low impedance, balanced		—
	Audio monitor output		RCA x1 (L, R, Mix), -11 dBu, 47 kΩ, unbalanced	—	RCA x2 (L/R), -11 dBu, 47 kΩ, unbalanced
	Digital audio output		BNC x2, 4 channels		—
	Headphone output		JM-60 Stereo phone jack x1, -∞ to -13 dBu, 8 Ω, unbalanced		
	Built-in audio speaker		—	x1, monaural	
	Time code output		BNC x1		—
	DC input and output		—	In: XLR 4-pin, male (x1), 11 to 17 V DC Out: Round type 4-pin, female (x1), 12 V	—
Other inputs/ outputs	i.LINK*		IEEE 1394, DV IN/OUT or File Access Mode***, 6-pin x 1		IEEE 1394, DV OUT** or File Access Mode***, 6-pin x 1
	Ethernet*		1000Base-T (RJ-45 x1)	100Base-TX (RJ-45 x1)	
	RS-422A		D-sub 9-pin x1 (VTR protocol)		—
Video performance	Sampling frequency		Y: 13.5 MHz, R-Y/B-Y: 6.75 MHz		
	Quantization		10 bits/sample		
	Error correction		Reed Solomon Code		
	Analog composite input to analog composite output		Bandwidth: 30 Hz to 4.5 MHz +0.5/-1.5 dB (NTSC) 25 Hz to 5.5 MHz +0.5/-1.5 dB (PAL) S/N ratio: 53 dB or more Differential gain: 2% or less Differential phase: 2° or less Y/C delay: 20 ns or less K-factor (2T pulse): 2% or less		—
Processor adjustment range	Video level		±3 dB	-∞ to +3 dB	±3 dB
	Chroma level		±3 dB	-∞ to +3 dB	±3 dB
	Set up/black level		±30 IRE/±210 mV		
	Chroma phase/hue		±30°		
	System sync phase		±3 µs		—
	System SC phase		±200 ns		—
Audio performance	Frequency response		20 Hz to 20 kHz +0.5/-1.0 dB (0 dB at 1 kHz)		—
	Dynamic range		More than 90 dB		—
	Distortion		Less than 0.05% (at 1kHz)		—
	Head room		20/18/16/12 dB (selectable from menu)		—
Supplied accessories			Operation manual (x1) PDZ-1 Proxy Browsing Software (x1) PDZ-VX10 XDCAM Viewer Software (x1) Proxy Viewer Software (x1) PDZK-P1 XDCAM Transfer Software (x1)	Operation manual (x1) PDZ-1 Proxy Browsing Software (x1) PDZ-VX10 XDCAM Viewer Software (x1) Proxy Viewer Software (x1) PDZK-P1 XDCAM Transfer Software (x1) Connector cap (1 set)	Operation manual (x1) PDZ-1 Proxy Browsing Software (x1) PDZ-VX10 XDCAM Viewer Software (x1) Proxy Viewer Software (x1) PDZK-P1 XDCAM Transfer Software (x1) Shoulder belt (x1)

Note about Ethernet and i.LINK (File Access Mode):
All XDCAM products allow asynchronous recording of MPEG IMX/DVCAM files through their Ethernet or i.LINK (File Access Mode) interfaces. Asynchronous recording is possible only when XDCAM units are connected with a PC.
***The PDW-V1 does not support synchronous DVCAM recording through i.LINK interface.*
****For connection with third party products using this mode, please contact your nearest Sony office.*

SONY

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www.sony.com/xdcam

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